

**DETERMINING CORRELATIONS OF RECEIVED SEQUENCES TO MULTIPLE
KNOWN SEQUENCES IN A COMMUNICATIONS SYSTEM**

ABSTRACT OF THE DISCLOSURE

A method, system, and apparatus enables interfering signals in a communications system to be efficiently identified using correlation calculations. Once identified, the interfering signals may be rejected and removed from further processing in a receiver. The number of mathematical operations required to determine correlates of multiple training sequences to received sequences (e.g., at multiple offsets) may be reduced by up to eighty percent (80%) in a Global System for Mobile Communications (GSM) implementation.

In accordance with certain embodiments, a correlation equation is manipulated, for example, to eliminate certain products by ensuring that they equate to zero, to eliminate redundant calculations by recognizing repeated subsequences, to eliminate common subexpressions, to determine a negative of a correlation result, etc. The manipulated correlation equation is then utilized within a receiver.